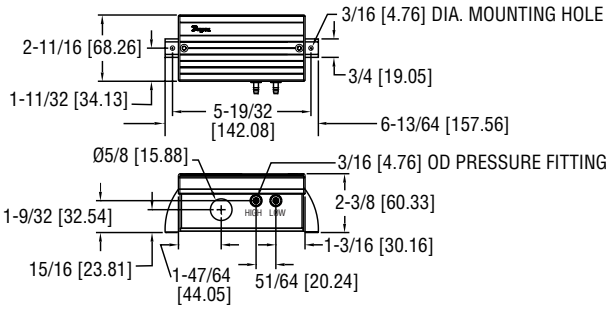
SERIES 666 RANGEABLE DIFFERENTIAL PRESSURE TRANSMITTER

Specifications– Installation and Operating Instructions



Description

Versatility is the key with our Series 666 Rangeable Differential Pressure Transmitter. Up to 6 field selectable pressure ranges are available in a single model. Four dipswitches located inside the transmitter case make calibration simple and easy. Glass Filled Polycarbonate housing provides environmental protection per NEMA 4 (IP65). Units can withstand overpressure to 10 psig. Low pressure ranges and ±1% full scale accuracy make these transmitters ideal for HVAC and energy management applications.

Installation

Pressure Fitting

Two (2) 3/16″ O.D. barbed pressure fittings are supplied for pressure connection with 1/4″ push-on tubing. Both the positive (high) pressure port and the reference (low) pressure port are located on the bottom of the unit, labeled High and Low respectively. For best results (shortest response times), 3/16″ I.D. tubing is suggested for tubing lengths up to 100 feet long, 1/4″ I.D. for tubing lengths up to 300 feet, and 3/8″ I.D. for tubing lengths up to 900 feet.

Electrical Connections

Wiring is through a PG9 cable strain relief. Wiring terminations are identified on the circuit board below the terminal strip. To access the terminal strip, remove the cover by using the screws on the top of the case.

The Series 666 Current transmitter is a loop-powered 4 to 20 mA current output unit. (See Figure 1). The current flows into +EXC. terminal and returns back to the power supply through the -EXC. terminal. The power supply must be a DC voltage source with a voltage range between 9 and 30 VDC measured between terminal +EXC. and -EXC.

PHYSICAL DATA

Service: Air and non-conductive gases.
Accuracy: ±1% of full scale (RSS) (includes non-linearity, hysteresis, and non-repeatability).
Output: 4 to 20 mA, 2-wire.
Loop Resistance: 0-500 ohms.
Supply Voltage: 9-30 VDC.
Maximum Pressure: 10 psig (0.7 kg/cm²).
Compensated Range: 40 to 150°F (5 to 65°C).
Thermal Effects: 0.033% FS/°F (0.06% FS/°C) includes zero and span.
Temperature Limits: Operating: 0 to 150°F (-18 to 65°C), Storage: -65 to 180°F (-54 to 82°C).
Housing: Glass Filled Polycarbonate case, NEMA 4 (IP65).
Mounting: 2 mounting tabs with .18″ dia. holes.
Electrical Connection: Screw terminal strip with PG-9 cable strain relief.
Pressure Connection: 3/16″ O.D. barbed brass pressure fitting for 1/4″ I.D. tubing.
Weight: 16.4 oz (465 g).

SERIES 666 TRANSMITTER MODELS & RANGES

Model Number	Ranges, Inches W.C.	Model Number	Ranges, Inches W.C.
666-1	0 to 0.1, 0 to ±0.05	**666-3**	0 to 1.25, 0 to 2.5, 0 to 5, 0 to ±0.625, 0 to ±1.25, 0 to ±2.5.
666-2	0 to 0.25, 0 to 0.5, 0 to 1.0, 0 to 0.125, 0 to ±0.25, 0 to ±0.5	**666-4**	0 to 7.5, 0 to 15, 0 to 30, 0 to ±3.75, 0 to ±7.5, 0 to ±15.

* Also available with optional LCD display. Consult factory for additional information.

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The unit is calibrated at the factory using a 250 ohm load at 24 VDC.

Notes:
Minimum Supply Voltage (VDC) = 9 + 0.02 x (resistance of receiver plus line)

Maximum Supply Voltage (VDC) = 30 + 0.004 x (resistance of receiver plus line).

If the current loop has a current limiter, threshold should be adjusted to 35 mA minimum.

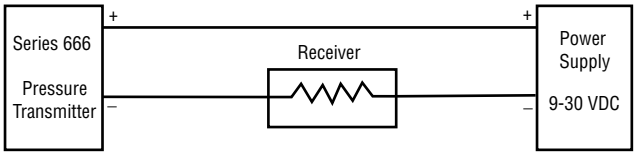


Figure 1

Calibration
The 666 series is factory calibrated and should require no field adjustment. However, both zero and span adjustments are accessible under the cover of the unit below and to the right of the terminal strip. Whenever possible, any zero and/or span offsets should be corrected by software adjustment in the user's control system. The 666 series is calibrated in the vertical position at the factory (baseplate vertical).

Zero Adjustment
While monitoring the current output with both pressure ports open to atmosphere, the zero may be adjusted. For unidirectional pressure ranges, turn the zero adjustment screw until a reading of 4 mA (±0.15 mA) is achieved. For bidirectional ranges, set the zero to 12 mA (±0.15 mA).

Span Adjustment (Complete the zero adjustment before setting span)
Span on full scale output adjustments should only be performed by using an accurate pressure standard (electronic manometer, digital pressure gage, etc.) with at least comparable accuracy to the 666 series (<±1% full scale). With full scale pressure applied to the high pressure port (reference port open to atmosphere) adjust span to achieve 20 mA output.

Example 1: Unidirectional pressure range of 0 to 1″W.C.
Apply 1.00″W.C., adjust span to 20 mA.
Example 2: Bidirectional pressure range of ±5″W.C.
Apply 5.00″W.C., adjust span to 20 mA.

Single Range LCD Version: The 666 series is available with an optional LCD display. Field adjustable multi-range capability is not available with this option. A single factory calibrated range is specified at order entry. The LCD readout is located in a window on the top cover.

Multi Range Operation
The 666 series is re-rangeable by accessing the switches located internal to the transducer housing. Remove cover using housing screws. The "Dip" switches are located on the electronics board as shown in Figure 2. The location of these switches, "on" or "off" determine what range has been selected. See Figure 2 .

Range Switching Instructions

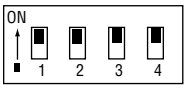
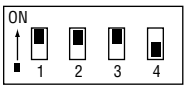
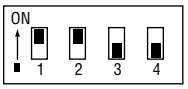
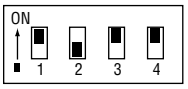
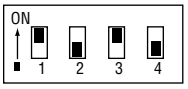
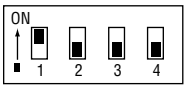
666-1 Range	666-2 Range	666-3 Range	666-4 Range	Switch Settings
0-0.1"	0-1"	0-5"	0-30"	
	0-0.5"	0-2.5"	0-15"	
	0-0.25"	0-1.25"	0-7.5"	
±0.05"	±0.5"	±2.5"	±15"	
	±0.25"	±1.25"	±7.5"	
	±0.125"	±0.625"	±3.75"	

Figure 2

Maintenance/Repair
After final installation of the Series 666 Rangeable Differential Pressure Transmitter, no routine maintenance is required. A periodic check of system calibration is recommended. These devices are not field repairable and should be returned to the factory if recalibration or other service is required. After first obtaining a Returned Goods Authorization (RGA) number, send the material, freight prepaid, to the following address. Please include a clear description of the problem plus any application information available.

Dwyer Instruments, Inc.
Attn: Repair Department
102 Highway 212
Michigan City, IN 46360

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